Social/Economic Justification Report for the Lowering of Water Quality for Receiving Stream: Unnamed Trib. of Piney Creek and Captina Creek for the American Energy/Century Mine/Bennoc Refuse Disposal Area Washington Twp., Belmont County NPDES No. 0IL00159*AD PTI: N/A October 18, 2012

The application for an NPDES Permit was evaluated in accordance with the Antidegradation Rules 3745-1-05 OAC. The proposed activity will result in a lowering of water quality and the information submitted by the applicant in accordance with OAC 3745-1-05 (B)(2) (c) - (g) and other information and facts were evaluated. The following issues were considered in recommending issuance of the permit(s):

(a) THE MAGNITUDE OF THE PROPOSED LOWERING OF WATER QUALITY:

Runoff and drainage from the 40 acre coal refuse area should not lower the water quality to any noticeable extent. There may be some small increase of TDS, sulfate, chloride, iron and manganese concentrations in the tributaries and Captina Creek. Discharges will only occur as a result of a precipitation event (rainfall or snowmelt). Runoff will be treated using conventional AMD treatment at two ponds. To protect WQ in the small tributaties and Piney Creek, the permit will require that the ponds be operated in a "fill-controlled discharge" mode. A discharge event will normally only occur once a week and for only less than 48 hrs. This will minimize the exposure of aquatic life to the high TDS and sulfate. The permit does have provisions to allow for more frequent discharge events during extreme wet weather. The company will also minimize the area of exposed refuse which should further reduce the concentrations of TDS and sulfate in the discharges.

(b) THE ANTICIPATED IMPACT OF THE PROPOSED LOWERING OF WATER QUALITY ON AQUATIC LIFE AND WILDLIFE, INCLUDING THREATENED AND ENDANGERED SPECIES, IMPORTANT COMMERCIAL OR RECREATIONAL SPORT FISH SPECIES, OTHER INDIVIDUAL SPECIES AND THE OVERALL AQUATIC COMMUNITY STRUCTURE AND FUNCTION:

It is not expected that the discharges will have any noticeable negative impact to aquatic life and wildlife. The life of the refuse area is expected to only be for about a year. After that the refuse disposal area will be "reclaimed" and pollutant discharges should occur.

(c) THE ANTICIPATED IMPACT OF THE PROPOSED LOWERING OF WATER QUALITY ON HUMAN HEALTH AND THE OVERALL QUALITY AND VALUE OF THE WATER RESOURCE:

The discharges should have a very low if any impact to human health and the overall quality and value of the receiving streams.

(d) THE DEGREE TO WHICH WATER QUALITY MAY BE LOWERED IN WATERS LOCATED WITHIN NATIONAL, STATE OR LOCAL PARKS, PRESERVES OR WILDLIFE AREAS OR WATERS DESIGNATED OUTSTANDING HIGH QUALITY WATERS, OUTSTANDING NATIONAL RESOURCE WATERS, SUPERIOR HIGH QUALITY WATERS OR STATE RESOURCE WATERS:

The discharges will be to tributaries of Captina Creek which is classified as superior high quality waters. There should be minimal impact to Captina for the reasons explained above and no long term impacts after the refuse area has been fill and closed and reclaimed.

(e) THE EFFECTS OF LOWER WATER QUALITY ON THE ECONOMIC VALUE OF THE WATER BODY FOR RECREATION, TOURISM AND OTHER COMMERCIAL ACTIVITIES, AESTHETICS, OR OTHER USE AND ENJOYMENT BY HUMANS:

The discharges from the refuse are should not affect the economic value of the water body for recreation, tourism and other commercial activities, aesthetics, or other use and enjoyment by humans.

(f) THE EXTENT TO WHICH THE RESOURCES OR CHARACTERISTICS ADVERSELY IMPACTED BY THE LOWERED WATER QUALITY ARE UNIQUE OR RARE WITHIN THE LOCALITY OR STATE:

The resources or characteristics of the water quality are somewhat unique or rare. Hellbenders live and breed in Captina Creek.

(g) THE COST OF THE WATER POLLUTION CONTROLS ASSOCIATED WITH THE PROPOSED ACTIVITY:

Costs to improve the existing two treatment ponds with installation of chemical feed is estimated to be $269,000. A PTI for these improvements will be submitted after the NPDES goes final.

(h) THE COST EFFECTIVENESS AND TECHNICAL FEASIBILITY OF THE NON-DEGRADATION ALTERNATIVES, MINIMAL DEGRADATION ALTERNATIVES OR MITIGATIVE TECHNIQUE ALTERNATIVES AND THE EFFLUENT REDUCTION BENEFITS AND WATER QUALITY BENEFITS ASSOCIATED WITH SUCH ALTERNATIVES:

Non-degradation alternatives are not reasonably available for mining operations. One non-degradation option would have been to capture and pump all the runoff/drainage pump over to the OVC's treatment impoundment. Here some of the water could be reused in the coal preparation process. Come increase in pollutant loading would still end up being discharged to Captina Creek. This option was significantly more expensive than the preferred alternative and considering the life of the refuse area was less than a year, it was not considered any further.

A minimal degradation option would have been to provide treatment for TDS. This would involve RO type treatment which is very expensive, costly to operate. It was not believed to be reasonable because of costs and the expected period of time the discharges will occur. An effluent line to the Ohio R. could be an option. But because of costs, need to begin discharging this year, etc. this option was not considered reasonable.

The preferred option is to improve the existing treatment ponds that were used when this area was surfaced mined for coal and discharge the treated effluent. Designing and operating the ponds in a "fill and empty" mode will help minimize impacts to WQ.

Mitigation: The applicant did not propose anything that would be considered mitigation.

(i) THE AVAILABILITY, COST EFFECTIVENESS, AND TECHNICAL FEASIBILITY OF CENTRAL OR REGIONAL SEWAGE COLLECTION AND TREATMENT FACILITIES, INCLUDING LONG-RANGE PLANS OUTLINED IN STATE OR LOCAL WATER QUALITY MANAGEMENT PLANNING DOCUMENTS AND APPLICABLE FACILITY PLANNING DOCUMENTS:

There are no sanitary sewers nearby and this is usually not an option for coal mining operations anyway.

(j) THE AVAILABILITY, RELIABILITY AND COST EFFECTIVENESS OF ANY NON-DEGRADATION ALTERNATIVE, MINIMAL DEGRADATION ALTERNATIVE OR MITIGATIVE TECHNIQUE ALTERNATIVE:

See discussion in item h above.

(k) THE RELIABILITY OF THE PREFERRED ALTERNATIVE INCLUDING, BUT NOT LIMITED TO, THE POSSIBILITY OF RECURRING OPERATIONAL AND MAINTENANCE DIFFICULTIES THAT WOULD LEAD TO INCREASED DEGRADATION:

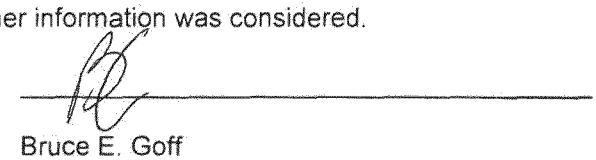
The preferred alternative for coal related wastewater (use of a treatment pond) is reliable. The sediment and any iron and manganese sludges collected in the pond will have to be periodically removed and disposed of in the refuse disposal area. Treatment ponds are standard treatment in the mining industry to treat contaminated runoff and drainage. Operating the ponds in a controlled discharge type of mode will help improve reliability since it will minimize short circuiting and should improve settling of solids during chemical treatment and minimize the re-suspension of settled solids during runoff periods when high rates of flow enter the pond.

(l) THE CONDITION OF THE LOCAL ECONOMY, THE NUMBER AND TYPES OF NEW DIRECT AND INDIRECT JOBS TO BE CREATED, STATE AND LOCAL TAX REVENUE TO BE GENERATED, AND OTHER ECONOMIC AND SOCIAL FACTORS AS THE DIRECTOR DEEMS APPROPRIATE

The Belmont County economy is depressed. AEC's Century Mine provides a significant benefit to local economy through payroll and taxes and purchase of equipment and supplies, etc. This expanded refuse area is needed to keep the mine operating until a larger refuse disposal area can be permitted.

(m) ANY OTHER INFORMATION THAT WAS CONSIDERED REGARDING THE PROPOSED ACTIVITIES AND THE AFFECTED WATER BODY:

No other information was considered.

Completed by: 

Bruce E. Goff
October 18, 2012